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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,440	07/23/2003	Robert Joseph Lyons	130034-1 (GEGRC 0105 PA)	7944

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
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NISKAYUNA, NY 12309

EXAMINER	
WARTALOWICZ, PAUL A	

ART UNIT	PAPER NUMBER
1754	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/625,440	LYONS, ROBERT JOSEPH	
	Examiner	Art Unit	
	Paul A. Wartalowicz	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/23/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 15 is objected as having a typographical error. In line 3, the recitation "alumina oxide" should be replaced with --aluminum oxide--.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "rare earth oxide precipitate" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1, 2, 3, 4, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060).

Srivastava et al. teach a process for producing a rare earth-activated garnet (paragraph 0001, lines 1-3) wherein the garnet structure is defined by the formula $(Tb_{1-x-y}A_xRE_y)_3D_zO_{12}$ wherein A is selected from Y, La, Gd, and Sm; RE is a member selected from the group consisting of Ce, Pr, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb, Lu, and combinations thereof; D is a member selected from the group consisting of Al, Ga, In, and combinations thereof; x is in the range from 0 to about 0.5, and y is in the range from about 0.0005 to about 0.2, and z is in the range from about 4 to 5 (paragraph 006, line 14-paragraph 0008, line 7) wherein at least one rare-earth compound of at least one rare-earth metal selected from the group consisting of Ce, Pr, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb, and Lu and oxygen-containing compounds of at least one member selected from the group consisting of Al, Ga, and In are mixed together and fired (paragraph 0023) at a temperature of 1450°C (paragraph 0027, lines 3-5) wherein ammonium hydroxide is added (paragraph 0028, lines 9-12) in order to precipitate a mixture of hydroxides (paragraph 0028, lines 9-12) wherein the precipitate is filtered,

washed, and dried (paragraph 0028, lines 16-18) wherein the dried precipitate is ball milled and then calcined in air at about 400°C to about 1600°C (paragraph 0028, lines 15-19) and wherein the calcined material is fired at 1200-1600°C in a hydrogen atmosphere (paragraph 0028, lines 24-27). Srivastava et al. fail to teach wherein the ammonium rare earth double oxalate precipitate is formed wherein the rare earth double oxalate precipitate is washed and dried and calcining rare earth double oxalate precipitate and mixing the rare earth double oxalate precipitate with a second quantity of aluminum oxide to form a mixture having the precise earth-alumina ratio; and wherein compacting milled mixture to form a compact powder, sintering said powder compact to form a perovskite and other intermediate compounds and sintering said garnet at a temperature between 1700-1800°C.

Izuno et al. teach a process for making a yttrium aluminum garnet-based fluorescent substance (paragraph 0156, lines 1-5) wherein coprecipitation of a solution of rare earth elements such as Y, Gd, Ce, Sm in oxalic acid may be fired and mixed with aluminum oxide (paragraph 0161, lines 5-8) for the purpose of obtaining a stock mixture (paragraph 0161, lines 7-9).

David teach a process for preparing ammonium rare earth double oxalates (col. 1, lines 19-21) wherein the precipitate is filtered and washed (col. 3, lines 56-61) for the purpose of separating supernatant liquid from the precipitate and removing soluble salts (col. 3, lines 56-61) for use in ceramics (col. 1, lines 25-28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein coprecipitation of a solution of

rare earth elements such as Y, Gd, Ce, Sm in oxalic acid may be fired and mixed with aluminum oxide (paragraph 0161, lines 5-8) in Srivastava et al. in order to obtain a stock mixture (paragraph 0161, lines 7-9) as taught by Izuno et al. wherein the precipitate is filtered and washed (col. 3, lines 56-61) in Izuno et al. to separate supernatant liquid from the precipitate and remove soluble salts (col. 3, lines 56-61) for use in ceramics (col. 1, lines 25-28) as taught by David.

As to the limitation of making ammonium rare earth double oxalates, David teach a process for making ammonium rare earth double oxalates (col. 1, lines 19-21) wherein ammonium rare earth double oxalates are useful in processes in the field of ceramics (col. 1, lines 26-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a process for making ammonium rare earth double oxalates (col. 1, lines 19-21) in Srivastava et al. for the reasoned explanation that ammonium rare earth double oxalates are useful in processes in the field of ceramics (col. 1, lines 26-30).

David also teach wherein the rare earth oxalate precipitate is calcined at a temperature of from 600°C to 1200°C (col. 4, lines 31-33) for the purpose of producing a rare earth oxide (col. 4, lines 7-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the rare earth oxalate precipitate is calcined at a temperature of from 600°C to 1200°C (col. 4, lines 31-33) in Srivastava et al. in order to produce a rare earth oxide (col. 4, lines 7-10).

As to the limitation wherein compacting said milled mixture to form a powder compact, and sintering said powder compact to form a perovskite and other intermediate compounds, and heating said perovskite and other intermediate compounds at between 900 and 1100 degrees Celsius to form a garnet, and sintering said garnet at a temperature between approximately 1700 and 1800 degrees Celsius, Vartuli et al. teach a process for making a terbium or lutetium containing garnet (paragraph 0010, lines 1-5) wherein the mixed oxygen-containing compounds are packed into a compact comprising a scintillator body of the desired shape (paragraph 0051, lines 1-5) and the body is then calcined at a temperature of about 700°C to 1500°C (paragraph 0050, lines 1-5) and then sintering the body at a temperature of from 1500°C to 1800°C (paragraph 0051, lines 6-9) and heating in an oxygen atmosphere (paragraph 0070, lines 15-19) for the purpose of making a final garnet composition (paragraph 0070, lines 13-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein the mixed oxygen-containing compounds are packed into a compact comprising a scintillator body of the desired shape (paragraph 0051, lines 1-5) and the body is then calcined at a temperature of about 700°C to 1500°C (paragraph 0050, lines 1-5) and then sintering the body at a temperature of from 1500°C to 1800°C (paragraph 0051, lines 6-9) in Srivastava et al. in order to make a final garnet composition (paragraph 0070, lines 13-15) as taught by Vartuli et al.

As to the limitations wherein sintering said powder compact to form a perovskite and other intermediate compounds, Rapier et al. teach a method for producing rare earth/alumina perovskites (paragraph 0111, lines 1-5) wherein calcining conditions can be selected such that calcination is effective to convert a portion of rare earth metal solution into a second rare earth aluminate such as perovskite (paragraph 0111, lines 1-8) wherein calcination takes place at a temperature between 800-1100°C (paragraph 0103, lines 20-23).

The teaching by Rapier et al. illustrates that perovskite is inherently taught as being produced in Vartuli et al. because of the reasoned explanation that the same materials are being exposed to the same conditions such as heating at the same temperature 800-1100°C.

As to the limitation in claim 2 wherein reducing the pH of said rare earth oxide gelatinous precipitate to about 4.0 by introducing a first amount of oxalic acid solution to said rare earth hydroxide precipitate, David teach wherein it is known to precipitate a rare earth hydroxide (col. 1, lines 44-46) and then treat the hydroxide with oxalic acid for the purpose of yielding a rare earth oxide (col. 1, lines 51-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide to precipitate a rare earth hydroxide (col. 1, lines 44-46) and then treat the hydroxide with oxalic acid in Srivastava et al. in order to yield a rare earth oxide (col. 1, lines 51-53) as taught by David.

The conditions set forth in the disclosure of David mentioned above meet the limitation wherein reducing the pH of said rare earth oxide gelatinous precipitate to about 4.0.

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060) and Giaquinta et al. (U.S. 2003/0219906).

Srivastava et al. teach a process as described in claim 1. Srivastava et al. fail to teach wherein milling said mixture comprises: introducing a low surface tension liquid to said mixture; and wet milling said mixture to a desired particle size.

Giaquinta et al. teach a process for the creation of an array of materials (paragraph 0001, lines 1-5) wherein the use of surfactants and polyvinyl alcohol can be added to mixture of components (paragraph 0082, lines 20-25) for the purpose of affect physical characteristics such as surface tension, vapor pressure, solvent viscosity (paragraph 0081, lines 12-16).

Therefore, it would have been obvious to one of ordinary skill in the art to provide the use of surfactants and polyvinyl alcohol can be added to mixture of components (surfactant is a low surface tension liquid, paragraph 0082, lines 20-25) in Srivastava et al. in order to affect physical characteristics such as surface tension, vapor pressure, solvent viscosity (paragraph 0081, lines 12-16).

Claims 6, 17-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060) Giaquinta et al. (U.S. 2003/0219906) and Monforte (U.S. 3574114).

Srivastava et al. teach a process for making a rare earth garnet as described in claim 1. Srivastava et al. fail to teach wherein said low surface tension liquid comprises a low surface tension alkane, and wherein milling said mixture comprises dry milling said mixture with a grinding media to a desired particle size, and removing said grinding media from said milled mixture prior to compacting said milled mixture and wherein removing said grinding media comprises burning said grinding media out of said milled mixture prior to compacting said milled mixture and wherein removing said grinding media comprises dissolving said grinding media out of said milled mixture prior to compacting said milled mixture.

Monforte, however, teach a process for making ceramics (col. 1, lines 14-16) wherein mixing is achieved using a wax binder as a medium (wax is an alkane, col. 3, lines 30-33) for the purpose of acting as a lubricant during pressing (col. 3, lines 34-36) which is removed by heating or dissolved (col. 3, lines 30-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein mixing is achieved using a wax

binder as a medium (wax is an alkane, col. 3, lines 30-33) for the purpose of acting as a lubricant during pressing (col. 3, lines 34-36) which is removed by heating or dissolving (col. 3, lines 30-35) as taught by Monforte.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060) and Shiang et al. (U.S. 2003/0075706).

Srivastava et al. teach a process for producing a transparent rare earth garnet as described in claim 1. Srivastava et al. fail to teach wherein compacting said milled mixture comprises dry pressing said milled mixture to form a powder compact.

Shiang et al., however, teach a process for making a rare earth-activated scintillator having a garnet structure (paragraph 0018, lines 1-3) wherein it is known to compact a powder by such a method such as hot pressing or hot isostatic pressing (paragraph 0057, lines 50-55) for the purpose of forming a desired shape (paragraph 0057, lines 53-55) in a similar process of forming a rare earth garnet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein it is known to compact a powder by such a method such as hot pressing or hot isostatic pressing (paragraph 0057, lines 50-55) in Srivastava et al. in order to form a desired shape (paragraph 0057, lines 53-55) in a similar process of forming a rare earth garnet.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060) and Kaneyoshi et al. (U.S. 2001/0027159) and Shiang et al. (U.S. 2003/0075706).

Srivastava et al. teach a process for making a rare earth garnet as described in claim 1. Srivastava et al. fail to teach wherein sintering said garnet comprises sintering said garnet at between approximately 1700 and 1800 degrees Celsius in a vacuum to form the transparent rare earth garnet ceramic and an oxygen deficient garnet; and introducing said oxygen deficient garnet to an oxygen atmosphere above 1000 degrees Celsius to form an additional amount of the transparent rare earth garnet ceramic.

Kaneyoshi et al. teach a process for making sintered body of a rare earth oxide (paragraph 0001, lines 1-3) wherein after the step of molding the rare earth oxide powder is a heat treatment for sintering in a vacuum (paragraph 0020, lines 1-7) for the purpose of obtaining the desired sintered body (paragraph 0020, lines 5-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein after the step of molding the rare earth oxide powder (molding is compacting, paragraph 0020, lines 1-4) is a heat treatment for sintering at a temperature of 1200-1900 degrees Celsius (paragraph 0021, lines 3-7) in a vacuum (paragraph 0020, lines 1-7) in Srivastava et al. in order to obtain

the desired sintered body (paragraph 0020, lines 5-8) such as rare earth garnets (paragraph 0020, lines 11-13) as taught by Kaneyoshi et al.

As to the limitation wherein introducing said oxygen deficient garnet to an oxygen atmosphere above 1000 degrees Celsius to form an additional amount of the transparent rare earth garnet ceramic, Vartuli et al. teach wherein the rare earth garnet is exposed to an oxygen atmosphere during or after sintering (during or after sintering the temperature is above 1000 degrees Celsius, paragraph 0014, lines 3-8) for the purpose of reducing radiation damage that would otherwise occur with the scintillator material is exposed to high energy radiation (scintillator is rare earth garnet, pargraph 0014, lines 4-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein the rare earth garnet is exposed to an oxygen atmosphere during or after sintering (during or after sintering the temperature is above 1000 degrees Celsius, paragraph 0014, lines 3-8) in Srivastava et al. in order to reduce radiation damage that would otherwise occur with the scintillator material is exposed to high energy radiation (scintillator is rare earth garnet, pargraph 0014, lines 4-8) as taught by Vartuli et al.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S.

5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060).

Srivastava et al. teach a process for making a rare earth garnet as described above in claim 1. Srivastava et al. fail to teach wherein introducing said oxygen deficient garnet to an oxygen atmosphere above 1000 degrees Celsius to form an additional amount of the transparent rare earth garnet ceramic.

As to the limitation wherein introducing said oxygen deficient garnet to an oxygen atmosphere above 1000 degrees Celsius to form an additional amount of the transparent rare earth garnet ceramic, Vartuli et al. teach wherein the rare earth garnet is exposed to an oxygen atmosphere during or after sintering (during or after sintering the temperature is above 1000 degrees Celsius, paragraph 0014, lines 3-8) for the purpose of reducing radiation damage that would otherwise occur with the scintillator material is exposed to high energy radiation (scintillator is rare earth garnet, pargraph 0014, lines 4-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein the rare earth garnet is exposed to an oxygen atmosphere during or after sintering (during or after sintering the temperature is above 1000 degrees Celsius, paragraph 0014, lines 3-8) in Srivastava et al. in order to reduce radiation damage that would otherwise occur with the scintillator material is exposed to high energy radiation (scintillator is rare earth garnet, pargraph 0014, lines 4-8) as taught by Vartuli et al.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060).

Srivastava et al. teach a process for making a rare earth garnet as described above in claim 1. Srivastava et al. fail to teach wherein the earth-alumina ratio of the transparent rare earth garnet ceramic is approximately 0.6/1.

Vartuli et al., however, teach a process for making a rare earth garnet (paragraph 0048) wherein amounts of oxygen-containing compounds (oxygen-containing compounds include terbium, lutetium, Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er, Tm, Al, Ga, and In, paragraphs 0044-0046) are chosen for the purpose of obtaining the final desired composition of the scintillator (paragraph 0049, lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein amounts of oxygen-containing compounds (oxygen-containing compounds include terbium, lutetium, Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er, Tm, Al, Ga, and In, paragraphs 0044-0046) are chosen in Srivastava et al. in order to obtain the final desired composition of the scintillator (paragraph 0049, lines 1-3).

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to

English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060) and Boecker et al. (U.S. 4932166).

Srivastava et al. teach a process for making a rare earth garnet as described above in claim 1. Srivastava et al. fail to teach wherein milling said mixture comprising dry milling said mixture with a rare earth garnet grinding media to a desired particle size, and wherein said rare earth garnet grinding media comprises yttrium aluminum garnet, and wherein miling said mixture comprising dry milling said mixture with an alumina oxide grinding media to a desired particle size, and wherein a third quantity of said ammonium rare earth double oxalate precipitate is added to said mixture to maintain the precise earth-alumina ratio, said third quantity being a function of the predetermined wear characteristics of said alumina oxide grinding media during said milling of said mixture.

Boecker et al., however, teach a process for grinding ceramics (col. 1, lines 12-15) wherein the grinding media consists essentially of the same material as the feed material producing ultra fine powders (wherein the same material is yttrium aluminum garnet or aluminum oxide, col. 3, lines 52-58) for the purpose of eliminating contamination by grinding media (col. 3, line 65-col. 4, line 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein the grinding media consists essentially of the same material as the feed material producing ultra fine powders (wherein the same material is yttrium aluminum garnet or aluminum oxide, col. 3, lines

52-58) in Srivastava et al. in order to eliminate contamination by grinding media (col. 3, line 65-col. 4, line 4).

As to the limitation wherein a third quantity of said ammonium rare earth double oxalate precipitate is added to said mixture to maintain the precise earth-alumina ratio, said third quantity being a function of the predetermined wear characteristics of said alumina oxide grinding media during said milling of said mixture, Vartuli et al. teach a process for making a rare earth garnet (paragraph 0048) wherein amounts of oxygen-containing compounds (oxygen-containing compounds include terbium, lutetium, Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er, Tm, Al, Ga, and In, paragraphs 0044-0046) are chosen for the purpose of obtaining the final desired composition of the scintillator (paragraph 0049, lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein amounts of oxygen-containing compounds (oxygen-containing compounds include terbium, lutetium, Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er, Tm, Al, Ga, and In, paragraphs 0044-0046) are chosen in Srivastava et al. in order to obtain the final desired composition of the scintillator (paragraph 0049, lines 1-3).

This teaching meets the limitation of claim 16 for the reasoned explanation that the grinding media is an oxygen-containing compound (aluminum oxide) added to the reaction of forming the garnet.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al. (U.S. 2002/0195587) in view of Izuno et al. (W.O. 03/034508; refer to English equivalent: Izuno et al. (U.S. 2004/0061433)) in further view of David (U.S. 5665323) and in view of Vartuli et al. (U.S. 2003/0127630) and Rapier et al. (U.S. 2004/0138060) Giaquinta et al. (U.S. 2003/0219906) and Monforte (U.S. 3574114) and Denton (U.S. 5385700) and Kinisky et al. (U.S. 6773473).

Srivastava et al. teach a process for making a rare earth garnet as described above in claim 1. Srivastava et al. fail to teach wherein removing said grinding media comprises subliming said grinding media out of said milled mixture prior to compacting said milled mixture.

Denton, however, teach a process for making a ceramic (col. 1, lines 5-8) wherein carbon balls are used in a mixing process for the purpose of being burnt off to give the alumina a porous sintered alumina layer (col. 10, lines 42-47).

Kinisky et al. teach wherein carbon balls can be burnt off or sublimed (col. 1, lines 31-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein carbon balls are used in a mixing process for the purpose of being burnt off to give the alumina a porous sintered alumina layer (col. 10, lines 42-47) as taught by Denton and by the reasoned explanation that carbon balls can be burnt off or sublimed (col. 1, lines 31-34) as taught by Kinisky et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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March 30, 2006

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